EXHIBIT 2

Telecommunications Business Plan for the Truckee-Donner Public Utility District, prepared by Navigant Consulting, Inc. (Nov. 1999)

TELECOMMUNICATIONS BUSINESS PLAN FOR THE TRUCKEE-DONNER PUBLIC UTILITY DISTRICT

Prepared ...

TRUCKEE -DONNER
PUBIC UTILITY DISTRICT

Prepared by

NAVIGANT CONSULTING, INC

TABLE OF CONTENTS

Section		Page
1.0	INTRODUCTION	1
2.0	BUSINESS CASE OVERVIEW	3
3.0	NETWORK MODEL HIERARCHY	4
4.0	KEY FINDINGS AND DATA	5
5.0	FINANCIAL ANALYSIS	11
6.0	CONCLUSIONS AND RECOMMENDATIONS	12
7.0	NEXT STEPS	13

TDPUD TELECOMMUNICATIONS BUSINESS PLAN

1.0 INTRODUCTION

Telecommunications and technology advances are transforming the world into a global information-based economy. Federal legislation to deregulate the telecommunications industry promotes competition:

- The Telecommunications Act of 1996 encourages electric utilities such as the Truckee-Donner Public Utility District (TDPUD) to provide telecommunications services in their local communities.

- Institutions, from municipal governments to local school boards, are attempting to harness the benefits afforded by advancing telecommunications technology, while struggling with complex social and economic challenges that accompany rapid change.

A passive, low profile, *wait and see attitude* towards deployment of advanced technology has attendant risks in its own right, as evidenced by the impact of technological advances in the transportation industry of previous generations:

- Once booming communities became ghost towns as they were bypassed by newly constructed railroad systems.

- Many of America's greatest cities languished for decades as suburban expressways and commuter rail lines ushered an unprecedented exodus from the urban core, sapping their energy and vitality.

As such, the economic and social progress of the Truckee community is intertwined with technological change. An information superhighway, now comprised of fiber optics and broadband telecommunications services, promises to reshape American communities once again. Connectivity and transmission quality will increasingly differentiate *smart communities* and serve as a magnet in attracting upscale businesspersons and professionals. Conversely, communities that are not prepared to respond to the challenges posed by the information superhighway risk economies that underachieve, in the extreme, becoming *electronic ghost towns*.

More homes and businesses in the TDPUD's service area are routinely using the Internet. Truckee's increasingly affluent residential customers will require greater access to advanced communications technologies and seamless interconnection to the outside world. For example, *telecommuting* technologies enable people to work at home more effectively, and are changing the way homes are being designed.

- Telecommuting-oriented services can accommodate virtual business office environments, complete with high-speed data, videoteleconferencing, high-resolution graphics, and high-fidelity sound.

- Telecommuting from Truckee-Donner can enhance the quality-of-life of its residents without a compromise of business effectiveness and productivity.

- Robust economic development of *year-round resort communities* such as Truckee may hinge on the telecommuting phenomenon, whereby Bay Area executives could maintain *virtual offices* or *bases of operation* in an extended vacation retreat.

However, Truckee's small serving area may not be sufficient to attract private enterprise to deploy an advanced fiber optic telecommunication infrastructure, which would be particularly well suited to this application.

THE TDPUD TELECOMMUNICATIONS INITIATIVE

TDPUD seeks to usher in a new era of increased telecommunications services in the interests of its constituencies in the Truckee Donner area, affording increased choice and expanded business and educational opportunities through telecommunications, while strengthening its internal operations through deployment of a fiber optic network.

- The TDPUD believes that it is uniquely positioned to be a facilitator of change within the Truckee Donner community – and intends to build upon its 75-year tradition and reputation as a provider of reliable, high quality electric and water service.

- TDPUD anticipates that its outstanding reputation in the community will enable it to enter the telecommunications service arena with immediate brand recognition and a high level of community acceptance.

Fulfillment of the TDPUD's increasing need for more sophisticated electric utility billing, metering, and customer services to meet the challenges of the deregulated electric industry is intertwined with the availability of a modern telecommunication transport system, encompassing high speed data communications, the Internet, e-commerce, and automated meter reading. In this context, the TDPUD has explored the prospects for deploying an advanced telecommunications network throughout its serving area for the purposes of:

- Improving the quality of telecommunication services on behalf of its constituents and, in particular, increasing accessibility to the information superhighway throughout the Truckee-Donner serving area.

- Managing TDPUD's internal operations more efficiently, delivering more competitive services to municipal constituents in an area of increasing deregulation. The TDPUD Board of Directors, at its 1998 Strategic Planning session, embraced the goal of building

a fiber optic infrastructure, with an initial focus on improving utility efficiency through automated meter reading, load control, substation and pump management, outage detection and more.

- Controlling a strategic resource as a potential source of additional revenues that would offset the costs of TDPUD's internal telecommunications costs and electric and water utility operations.

In addition, telecommunications services, while providing enhanced value to the Truckee-Donner constituents, is a means of further differentiating the TDPUD from other service providers, and assuring the viability of the TDPUD.

- Telecommunications networking provides a means of furthering regional cooperation and providing more efficient services by working jointly.

2.0 BUSINESS CASE OVERVIEW

The TDPUD plans to establish a fiber optic backbone network that will provide a highly reliable broadband telecommunications facility to meet its internal requirements. The planned fiber route, as shown in Figure 1, follows a pathway of preexisting electric utility poles, which provides an economic means of establishing the required network infrastructure. The fiber backbone, approximately 35 miles in length, essentially girdles the residential areas of the Township and traverses the length of Donner Pass Road.

Installation of the fiber optic backbone presents an opportunity to accommodate the requirements of other public, educational, and government (PEG) agencies as well. The telecommunications network can be further leveraged to provide commercial telecommunications services to the TDPUD's existing residential and business customer base within the District. Telecommunications services could also be made available to prospective telecommunications customers in the surrounding region.

This Business Case evaluates TDPUD telecommunications business strategies and options, and, based on in-depth analysis, recommends a course of action for the TDPUD that will achieve effective utilization of TDPUD's vital telecommunications network resource. Objectives are to:

- Provide a prioritized development plan that establishes realistic short term goals while laying a foundation to pursue attractive market opportunities in the future

- Assess the impact of current and future service requirements on fiber optic backbone infrastructure construction

- Provide the District with the information needed to optimize fiber optic backbone deployment

- Evaluate potential telecommunications business opportunities that would generate revenues to offset the costs of internal TDPUD Electric and Water Department telecommunications upgrades and general operations

- Assess the financing requirements and mechanisms to proceed with project implementation if the telecommunications initiative proves to be viable

- Determine the merits of prospective partnership agreements with telecommunications and Internet service providers for the purpose of sharing capital investments and operating costs

- Determine the value of the TDPUD's fiber optic backbone route as a basis for establishing business relationships and evaluating business opportunities.

3.0 NETWORK MODEL HIERARCHY

Network models were prepared for each level of the following telecommunications service hierarchy:

- A core network to meet the Electric and Water Department's internal requirements

- An extension of the core network to accommodate the needs of other PEG agencies

- An expansion of the core network to a high capacity fiber backbone route,[1] and lease of available fiber capacity (or dark fiber) to telecommunications carriers and possibly large businesses

- Equipping network facilities and enhancing network capabilities for sale of high-speed commercial telecommunications services (3 to 5 MHz and possibly 100 MHz bandwidth channels) to business customers

- A hybrid fiber/coax infrastructure capable of supporting Internet, CATV, Internet, and alternative forms of telephone service to residential communities.

Business models incorporating elements of the network models were developed to evaluate the opportunities for lease of dark fiber; provisioning of high-speed transport services; and Internet, CATV, and telephone service capabilities. The financial viability of each service was assessed from a vantagepoint of cash flows and contributions to offset TDPUD's telecommunications and operations costs.

---

[1] Each major section of the fiber backbone is sized in accordance with varying telecommunications traffic requirements.

Analysis of services was performed on an incremental basis to facilitate the service-evaluation process. Potential service revenues (or in some cases revenue requirements),[2] expenses, and capital expenditures were determined at each level of the network hierarchy which was a staging point for the next level of the hierarchy. By these means, incremental revenues for a particular service could be directly associated with incremental investments. The TDPUD's core network was the starting point, which was expanded to accommodate each successive set of service requirements.

Capital investments and revenues for the network hierarchy are shown in Exhibit 1 on the following page. The first row is the requirement for accommodation of TDPUD's internal telecommunications needs. The subsequent rows indicate the revenue opportunity at each service level and the associated capital investment (for telecommunications infrastructure, fiber, and electronics). The ratio of (tenth-year) annual revenues to total investment produces a gauge of *bang-for-the-buck* associated with each service category.

4.0 KEY FINDINGS AND DATA

The following is a summary of key findings and data with regard to incremental buildup of system capacity and costs:

INFRASTRUCTURE

The cost to prepare a 35-mile backbone route infrastructure necessary for interconnecting Electric Department and Water Department facilities – excluding the fiber optic cable – is $590,000. These costs are primarily for preparation of existing poles along TDPUD's existing right-of-way to accommodate fiber optic cable, along with installation of new poles in limited sections to provide network connectivity. The use of existing electric utility poles results in substantial savings by comparison to new construction. The intrinsic value of this infrastructure should be reflected in structuring partnership agreements with telecommunications service providers.

CORE TDPUD FIBER NETWORK

An advanced broadband system is essential for accommodating diverse telecommunications requirements, ranging from basic voice through broadband imaging. Fiber is the technology of choice for delivery of broadband services.

---

[2] Revenue requirements are the revenues necessary to cover annual expenses and an objective return on investment. This approach is applied in lieu of revenue estimates that are based on assessment of market demand.

- Fiber is a robust technology, with infrastructure having a useful lifetime of twenty years or more. The risk of stranded investment in fiber infrastructure as a result of technological obsolescence is low.

- Fiber has virtually unlimited capacity. With suitable electronics fiber can transport gigabits of data on a single pair of fiber strand. Electronics will continue to evolve and improve fiber transport capabilities.

- Fiber has excellent transmission quality, and relatively few repeaters are required to boost the signal. Reliability is enhanced through the use of a fiber ring architecture, which enables the signal to be transmitted in two directions simultaneously, maintaining connectivity in the event of a fiber cut.

A fiber optic route is required as part of a wide area network to accommodate the TDPUD's internal communications and a modern Supervisory Control and Data Acquisition (SCADA) system. Basic requirements of the TDPUD can be met with a minimum-sized sheath of from 24-strands to 48-strands of fiber at an installed cost of $287,000. The capital expenditures for both infrastructure and fiber, including engineering and design costs, is $910,000. The additional cost of SCADA telecommunications network electronics to serve the electric utility substations, water utility pumping stations and other TDPUD facilities is $798,000, for a total capital investment of $1,708,000.

Benefits of the core fiber network are derived from both reduced costs to the TDPUD and increased productivity of the TDPUD operations. This reflects the combined impact of a reduction in telecommunications bills, an increase in productivity (doing the same job more efficiently), and improved performance (providing expanded services and capabilities). A telecommunications network would facilitate the integration of office and operations centers. Increased flexibility in the location of facilities and the potential for District-wide coordination of functions could be achieved. Applications include:

- Operations support for engineering and planning, purchasing, meter servicing, field crew scheduling and administration, customer services, etc.

- Database management for material storage, vehicle parking and maintenance, warehousing, transformer and meter shops, etc.

- Wireless network interfaces to gather data from automated meter reading (AMR) devices, for both electric and water systems, as they become operational.

The estimated dollar value of cost reduction and productivity/performance enhancements is conservatively estimated to be in excess of $100,000 annually, including yearly saving of $40,000 in energy costs alone, derived from managing water storage pumping schedules through an integrated electric/water utility SCADA system.

INCREMENTAL COSTS OF A DOWNTOWN-AREA PEG NETWORK

Other public, education, and government institutions can be accommodated on the core fiber backbone at no additional cost for fiber and infrastructure. However, route extensions and electronics deployed at PEG sites would be needed to interconnect the facilities to the backbone. PEG-related costs would be borne by each organization, as follows:

- *Reimbursement of Capital Expenditures* - It is presumed that the District would procure and install electronics on behalf of the PEG network user. The PEG entity, in turn, would reimburse the District for capital expenditures associated with dedicated, site-specific electronics, or network nodes (the largest construction program expenditure). This could be a one-time capital payment, or an annual annuity, to offset the TDPUD's cost of construction. By way of example, the School District could be responsible for the collective costs of network nodes required by individual school systems.

- *Shared Annual Expenses* - Annual expenses, including operations and depreciation (for common network plant and electronics), would be allocated to PEG users based on the percentage of network nodes in service. Benefits derived from telecommunications services are assumed to be in proportion to the number of active nodes. Allocation factors would reflect the distribution of nodes as the PEG network expansion progresses. Much of the electronics associated with common central office equipment could also be shared, and capital expenditures allocated in similar fashion.

Incremental expenses associated with the PEG component of an integrated TDPUD/PEG network would be substantially less than for two or more stand-alone networks. Allocated costs that would also cover a proportionate share of PEG-related network operations and administration, and would enable these institutions to realize substantial savings. As capital expenditures and expenses are *flowed-though*, they have not been incorporated in the current financial analysis. [3]

---

[3] The network model incorporates the PEG requirements, which can be evaluated as specific requirements are identified. This would entail reaffirming the interest and degree of commitment on the part of PEG agencies, such as the educational institutions, and the hospital, and their willingness to contribute capital costs and share annual expenses. The construction budget and priorities for network deployment would be updated in view of responses received, and the baseline scenario refined accordingly. Mechanisms for funding the PEG's share of construction costs would be established, and estimates for network procurement and installation activities modified accordingly.

High Speed Transport Services

The Town of Truckee does not have a core of large businesses that would likely justify provisioning of business-oriented services as a *stand-alone* operation. Rather, sale of broadband services (3 to 5 MHz and possibly 100 MHz *pipes*) to businesses in the Downtown Truckee area (along Donner Pass Road) is positioned as *an economic development resource* that would provide existing businesses with access to leading-edge broadband technology at deeply-discounted, affordable prices. Dedicated fiber rings to serve the business community and associated electronics could be installed and maintained by TDPUD in conjunction with the internal TDPUD network and PEG operations. Revenues would reflect a fixed monthly charge associated with allocation of fixed network costs, and a usage sensitive charge for use of high-speed data, Internet, and alternate access services. An incremental investment of approximately $328,000 is estimated to establish network nodes for accommodation of the business community, which would generate corresponding revenues of approximately $133,000 annually.

Backbone Route Expansion

Lease of dark fiber is a potentially attractive business and has the lowest level of operational complexity of any service under consideration. The fiber route can be significantly expanded in cross sections ranging from 24/48 fibers to cross-sections ranging from 48/144 fibers at a cost of $338,000. This capacity would be adequate for leasing fiber to a CATV service provider, Competitive Local Exchange Carrier (CLEC), or competitive access providers (CAPs) for their commercial service applications. The expanded capacity is achieved for a capital expenditure of approximately $9,700 per route-mile, in contrast to a cost of $26,700 per route-mile for deployment of a new fiber route of equivalent capacity. The upside potential for revenue generation—as well as preservation of future service opportunities—substantially outweighs the risk of underutilized fiber capacity. Necessary arrangements for network connectivity would have to be made to accommodate customer requirements (e.g., to PacBell central offices and long distance carrier points-of-presence). The total capital investment for an expanded network, which would also accommodate TDPUD, PEG, and business requirements, would be $2,376,000

Pending Agreement

A proposed agreement with Truckee's incumbent CATV service provider for indefeasible right-to-use 48 fibers over a period of 15 years at a price of $60,000 per year is under consideration. The income stream would have a present value of approximately $160,000 in excess of the TDPUD's incremental costs, also taking into account the annual maintenance fees incurred by TDPUD. However, the carrier would realize savings of over $430,000 in contrast to construction of a new route utilizing TDPUD's existing poles and similar (self-supporting fiber) construction techniques. Moreover, duplicative fiber facilities would be

required by the CATV service provider, which would utilize scarce utility pole capacity, denying its use for other telecom and electric utility requirements in the future.[4] Revenue estimates of $70,000 per year are assumed, apart from reaching an accord with the CATV service provider.

HIGH SPEED INTERNET AND CATV SERVICE

Delivery of high-speed Internet (10MHz to 100 MHz) and CATV services (750 MHz) requires construction of a hybrid fiber/coax (HFC) network or an equivalent high speed advanced technology network arrangement. In an HFC environment, coaxial cable runs of 2,000 feet or longer fan out from the fiber node to distribute the broadband to residences throughout the network serving area. Initial capital investment necessary to make broadband Internet and CATV service universally available (measured in terms of percent of *homes passed*) to the area's 9,800 households is $3,076,000, including costs of the expanded HFC coax infrastructure, and electronics at the fiber nodes, along coaxial cable runs, and at the headend. Another $287,000 in infrastructure expansion would be incurred over time to accommodate anticipated growth to 13,600 during the subsequent ten-year period, yielding a total investment of $3,363,000.[5]

High speed Internet access would be provided in conjunction with the HFC network for an initial investment of only $92,000 associated with headend electronics. This investment would increase to approximately $228,000 after ten years. The business case presumes that a partnership agreement would be entered into in conjunction with an ISP. The ISP partner would be responsible for supplying cable modems to its Internet subscribers and for managing day-to-day Internet service operations. Internet subscribers would be charged $30 per month for cable modem service; and TDPUD and the ISP partner would share revenues on a 50/50 basis. It is anticipated that 6 percent of homes would initially subscribe to Internet service, and that subscribership would increase to 25 percent over a period of ten years.

CATV service would initially be made available to virtually all homes in the TDPUD serving area and nearby communities. The business case presumes that approximately 24 percent of the homes passed would subscribe to services offered by the TDPUD at the

---

[4] The proposed agreement represents a significant accommodation of the carrier, with lease rates of $4 per fiber-mile per month – as contrasted to minimum commercial rates of $40 per fiber mile per month (e.g., Longmont, Colorado). Moreover, and the carrier would avoid annual attachment fees at recently introduced higher rates for telecom attachments (a factor of three or more compared to historic fees).

[5] Growth is through infill of existing neighborhoods, such as Tahoe Donner, and through new developments. Both aspects of growth are considered in the business analysis.

outset. After 10 years it is anticipated that subscribership would increase to approximately 50 percent of homes passed, leveling off after that time. Additional investment for accessing individual residences (drops and set-top boxes) would be approximately $327,000. Incremental investment to develop the CATV market through the tenth year would be $2,294,000, accommodating increasing subscribership in existing serving areas, addition of fiber infrastructure as new roads are constructed, and addition of new fiber nodes and coax facilities to accommodate growth in the number of residences.

The total investment for a fully integrated telecommunications network after ten years would be $8,263,000, of which the community-wide broadband Internet and CATV network would account for $5,887,000. The total capital investment per CATV subscriber is estimated to be approximately $1,000 – in addition to the core TDPUD SCADA network.

Telephony

Cable telephony could also be provided in conjunction with the HFC network. As cable telephony requires high incremental investment (specifically, a digital switch) and entails substantial operational complexity (e.g., Emergency 911 services), a venture into cable telephony would advisedly be done in partnership with a Commercial Local Exchange Carrier (CLEC). Analysis indicates that offering telephone service at this time – in competition with the local exchange carrier was not advisable. However, the technology for non-traditional telephone service offerings is changing rapidly, and telephony via the Internet (Telephone over Internet Protocol) is becoming increasingly attractive. Telephone over IP is presumed to be widely available within a period of several years; however, no revenues and investment are embedded in the existing Internet service.

Capacity Management

Fiber requirements can vary significantly, depending on the number of CATV service providers within the community and the number of fibers required per CATV node (e.g., four versus six fibers). Consideration was given to the case of one CATV provider versus two CATV providers, with each requiring from four to six fibers per fiber node. The range of incremental costs to cover the maximum requirement (two CATV providers to the minimum requirement (one CATV provider with four fibers per node) is approximately $120,000. The difference in cost corresponds to approximately five percent of overall HFC program costs. Installation of fiber to accommodate the maximum requirement is appropriate as a form of insurance that guarantees accommodation of several service providers. The additional fiber is provides a contingency in the event of unanticipated network demand and unanticipated future requirements.

5.0 FINANCIAL ANALYSIS

Income Statements, Balance Sheets and Cash Flows for a 15-year period, commencing in 2000 (corresponding to the initial program year) are provided in Exhibits 2 through 4. Assumptions and guidelines underlying this analysis are included in Appendix 1.

- Total annual revenues increase from $1.3 million in Year 1 to $4.8 million annually in Year 15. Operating expenses increase from $1.1 million to $2.3 million during the corresponding period. Operating margins, the difference between Revenues and Operating expenses are positive throughout the period, increasing from $236,000 to $2.4 million during this time span.

- Net Income, including loan origination fees and interest payments, is negative for the initial two-year period, but turns positive in the third year and continues to increase over the 15-year horizon. Earnings exceed $1 million by the eighth year, $1.5 million in the 11th year, and more than $2 million in the 13th year.

- Capital expenditures are $5.6 million at the inception of service and $500,000 during the first year. Annual capital expenditures of from $200,000 to $400,000 are incurred annually on a going forward basis to accommodate network growth.

- The capital construction program is to be financed through issuance of a Certificate of Participation (COP) for $6 million, payable in full after 15 years, with interest-only due during the first two years. The interest-only feature is to alleviate cash flow pressures during the startup period. Issuance fees for the COP are approximately $250,000; and the equivalent of a reserve fund, corresponding to one year's payment is to be held in escrow for 15-year duration of the COP. Interest earned on the escrow account would be available as an offset to annual interest due on the COP.

- In addition to COP financing, dedicated SCADA electronic systems are to be financed separately through the TDPUD's capital fund, independent other telecommunication initiatives.

Telecommunications Assets and Liabilities are shown in Exhibit 3.

- Assets comprise plant at costs less a reserve for depreciation, and a cash reserve, which for purposes of tracking benefits derived from telecommunications operations, is allowed to accrue throughout the period.[6] Assets increase from $6.5 million in Year 1

[6] In practice, these funds would be released for use by the TDPUD to offset costs associated with electric and water utility operations.

to $17.7 million in Year 15, by which time a cash reserve of $15.7 million has been accumulated.

- TDPUD's equity increases from $550,000 in Year 1 to over $17 million by Year 15.

Cash flows are provided in Exhibit 3.

- TDPUD's cash position is positive throughout the 15-year period taking into consideration non-cash expenses (depreciation) and earnings from operations.
- Annual cash flow is negative only during the second year, but is covered through funds available through issuance of the COP in the prior year.
- Engines for earnings growth are Internet service, which affords substantial margins under the prescribed partnership arrangement with an ISP, and CATV service, which affords substantial return on investment.

6.0 CONCLUSIONS AND RECOMMENDATIONS

There are strong incentives for the TDPUD to assume a proactive role in telecommunications, as a service provider, facilitator, coordinator, and partner with an Internet service provider. The business case demonstrates that the integrated telecommunications plan affords an attractive business opportunity for the TDPUD under the prescribed scenario, to:

- Create a viable telecommunications network that is capable of generating substantial revenues that make the system self sustaining.
- Make a significant contribution towards defraying the costs of electric and water operations.

In addition to serving its internal and PEG telecommunications requirements, TDPUD telecommunications initiatives should focus on high-speed Internet and CATV services. Business services should be provided as an extension of core network to further economic development in the Donner Pass Road corridor. TDPUD should not provide traditional telephone service at this time, but may enter this market as an extension of Internet service (e.g., second-line or teen-line service) as the technology matures.

The financial analysis indicates that the prospects for TDPUD's success in the Internet and CATV markets are high. Substantial earnings are realized, even with relatively conservative estimates of market share. Significant economies are realized as a result of TDPUD's ongoing utility operations, which are reflected in the financial analysis.

The level of resources required to effectively run the business fit well within the size and scope of the District's current operations. Staffing requirements are modest; the fiber backbone investment dovetails with requirements for an expanded SCADA system, and cash flows remain positive throughout the 15-year study period.

Priority should be given to establish the fiber backbone route and HFC platform to maximize the opportunity within the level of resources available through the COP.

The integrated telecommunications plan leverages the resources of the TDPUD and is an effective means of accelerating the introduction of advanced technology to the Truckee area, which could otherwise languish if left to the devices of existing telecommunications carriers.

- These carriers either view Truckee as a low-priority market, by virtue of the limited size of the opportunity relative to larger communities, or lack the financial strength, staying power, or commitment to service of the TDPUD.

- The TDPUD initiative would enable the Truckee area to *control its destiny* in furthering technology-dependent trends such as telecommuting, which have significant economic development ramifications for this resort area.

- There is a natural fit between the TDPUD's operation and administration system that would achieve significant cost savings relative to a telecommunications start-up. These efficiencies are reflected in annual expenses in Exhibit 2.

- The earnings stream from CATV and Internet operations would be recycled within the Truckee area in the form of capital improvements and lower utility bills.

Findings and recommendations are supported in the body of the report and in the accompanying detailed network model and financial analysis. The dynamic model developed by Navigant Consulting, for Districts and municipal owned utilities has addressed related *what if* questions and explored the impact of changes to specific guidelines and assumptions. This model has also been employed to explore a range of strategies and scenarios in-depth, in the process of establishing the baseline scenario for in-depth analysis.

7.0 NEXT STEPS

A network implementation plan that incorporates network design engineering, procurement, construction, and operations are recommended as a follow-on to the business case analysis. This would entail:

- Preparation of detailed network layouts and infrastructure designs for accommodation of near term and long term service requirements.

- Establishment of backbone route segment fiber counts to accommodate two CATV service providers.[7]

- Provisions for interconnection with outside service providers for high-speed Internet and network access services.

- Preparing network specifications suitable for obtaining quotes and bids.

- Provisions to secure construction program financing through a $6,000,000 Certificate of Participation (or similar vehicle) with a 15-year term and provision for interest-only payment for the first two years.

- Provisions for budgeting $600,000 in TDPUD capital expenditures for dedicated SCADA electronics (outside of the framework of the overall telecommunications project).

- Reaffirmation of the interest and degree of commitment to the telecommunications project on the part of municipal and county governments, educational institutions, the hospital, and other PEG institutions. TDPUD would need to:

  - Assess the willingness of PEG entities to contribute capital costs and share annual expenses.

  - Establish PEG-related budgets and priorities for network deployment in view of responses received. Develop budget estimates for network procurement and installation activities accordingly.

  - Establish construction cost rebate and allocation mechanisms for funding TDPUD's share of construction costs.

- Prepare standardized contracts and service agreements with telecommunications service providers.

- Enter into negotiations with prospective partners for provision of ISP services.

- Continue to explore opportunities for lease (or sale) of dark fiber.

---

[7] The incremental cost for a second CATV provider is $120,000.

Truckee Donner Public Utility District

Exhibit 2 - Income Statement

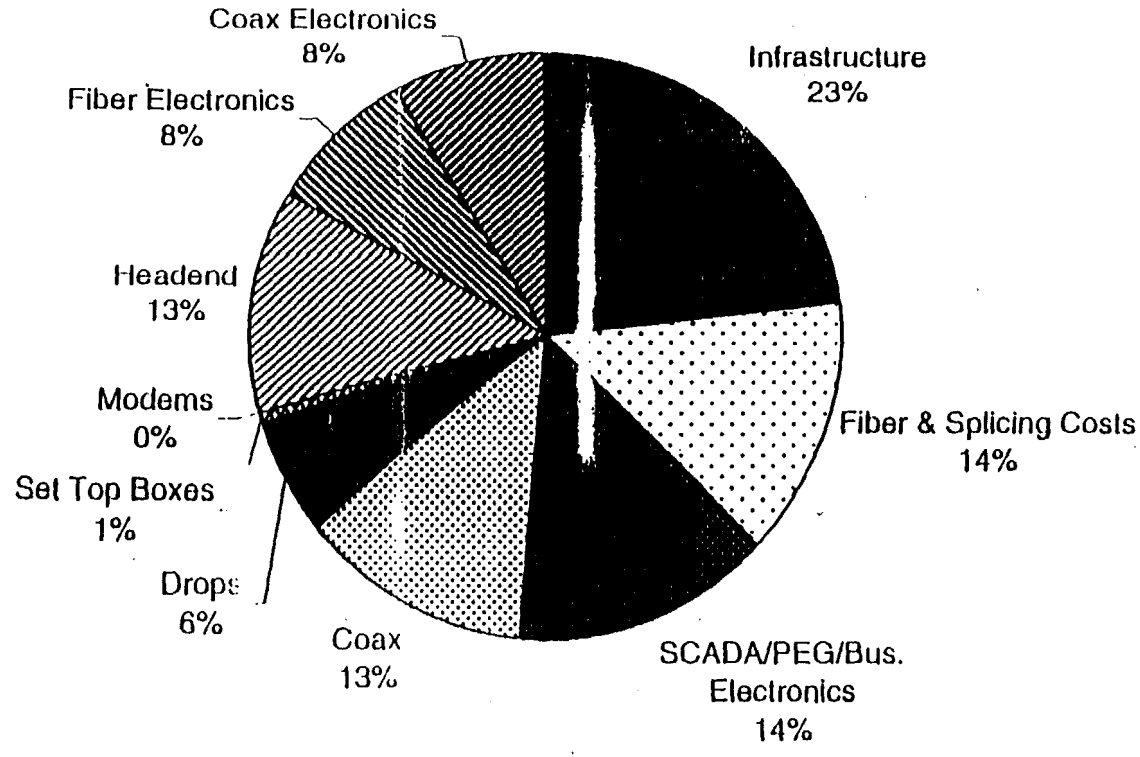
Program Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Revenues																	
SCADA Benefits & Cost Savings		121,631	118,400	116,032	113,206	110,789	112,314	110,8[illegible]	109,450	108,001	106,700	105,368	104,059	102,777	101,522	100,291	99,084
PEG Payments & Business Revenues		0	37,143	89,052	120,157	134,240	153,497	153,4[illegible]	153,497	153,497	153,497	153,497	153,497	153,497	153,497	153,497	153,497
Lease of Fiber Backbone		70,000	70,000	70,000	70,000	70,000	70,000	70,0[illegible]	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Internet (Net Contribution)		102,233	182,801	263,625	266,384	307,840	381,238	415,4[illegible]	470,727	528,998	584,379	642,042	702,762	763,917	826,486	890,552	956,200
CATV		992,500	1,352,456	1,621,333	1,854,280	2,059,740	2,244,393	2,413,5[illegible]	2,571,372	2,721,252	2,865,852	3,007,310	3,147,386	3,287,482	3,428,701	3,572,060	3,718,340
Gross Income		1,288,455	1,730,600	2,091,842	2,416,098	2,685,849	2,941,440	3,163,3[illegible]	3,375,046	3,579,808	3,780,428	3,978,124	4,177,704	4,377,654	4,580,206	4,786,400	4,997,122
Less: Bad Debt and Collections		11,388	15,653	18,980	21,940	24,823	27,099	29,422	31,638	33,782	35,882	37,983	40,042	42,134	44,254	46,411	48,615
Plus Interest on Reserve Fund		54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886	54,886
Total Income		1,329,954	1,769,833	2,127,748	2,449,042	2,715,911	2,969,227	3,188,8[illegible]	3,398,294	3,600,912	3,799,431	3,995,047	4,192,548	4,390,405	4,590,838	4,794,874	5,003,393
Expenses																	
Programming		258,708	343,380	415,133	476,974	531,210	579,666	623,7[illegible]	664,719	703,378	740,485	776,620	812,278	847,813	883,544	919,728	956,579
Franchise Fees		40,629	87,623	81,067	92,714	102,007	112,220	120,677	128,569	136,063	143,203	150,366	157,369	164,373	171,435	178,603	185,917
Depreciation		418,180	480,672	513,198	530,582	550,629	568,300	588,930	607,280	636,582	656,948	686,439	671,940	603,088	634,552	663,801	698,512
Sales & Marketing		30,000	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Operations																	
Program Services (Technicians)		48,568	116,563	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756	137,756
Plant Maintenance (Including Vehicles)		83,907	102,507	110,502	113,277	116,097	119,497	123,333	126,958	132,055	134,009	140,330	145,407	150,553	155,764	160,182	166,766
Utilities		6,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Expensed Installation Cost		40,893	13,365	11,338	9,772	8,570	7,657	6,972	6,468	6,108	5,864	5,711	5,633	5,615	5,648	5,717	5,823
General & Administration																	
Executive Management & Staff		85,750	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000
Employee Benefits (All Employees)		48,498	85,804	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002	93,002
Subscriber Billing		8,724	11,676	13,994	16,078	17,907	19,540	21,027	22,407	23,710	24,961	26,180	27,381	28,579	29,784	31,003	32,245
Other General & Administration		16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900	16,900
Operating Expenses		1,003,836	1,305,678	1,550,389	1,644,555	1,733,457	1,812,037	1,890,804	1,960,658	2,043,052	2,109,718	2,190,813	2,125,167	2,205,179	2,285,872	2,364,081	2,451,000
Operating Income		236,118	374,155	577,359	803,487	982,455	1,157,190	1,298,076	1,437,636	1,557,860	1,689,713	1,805,234	2,067,381	2,185,226	2,304,966	2,430,813	2,552,392
Less: Interest and Financing Expenditures																	
Financing Costs For Certificate of Participation		260,000															
Interest On Certificate of Participation		420,000	420,000	420,000	401,375	381,447	360,123	337,307	312,893	286,771	258,820	228,912	196,911	162,670	126,032	86,830	44,883
Interest On TOPUD Reserve Funds		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Expenses		1,763,836	1,816,678	1,970,389	2,045,930	2,114,903	2,172,160	2,227,100	2,273,462	2,329,823	2,368,538	2,419,726	2,322,078	2,367,849	2,411,904	2,450,891	2,495,883
Net Income		433,882	45,845	157,359	402,112	601,008	797,067	961,[illegible]	1,124,842	1,271,089	1,430,893	1,576,321	1,870,470	2,022,556	2,178,934	2,343,983	2,507,509

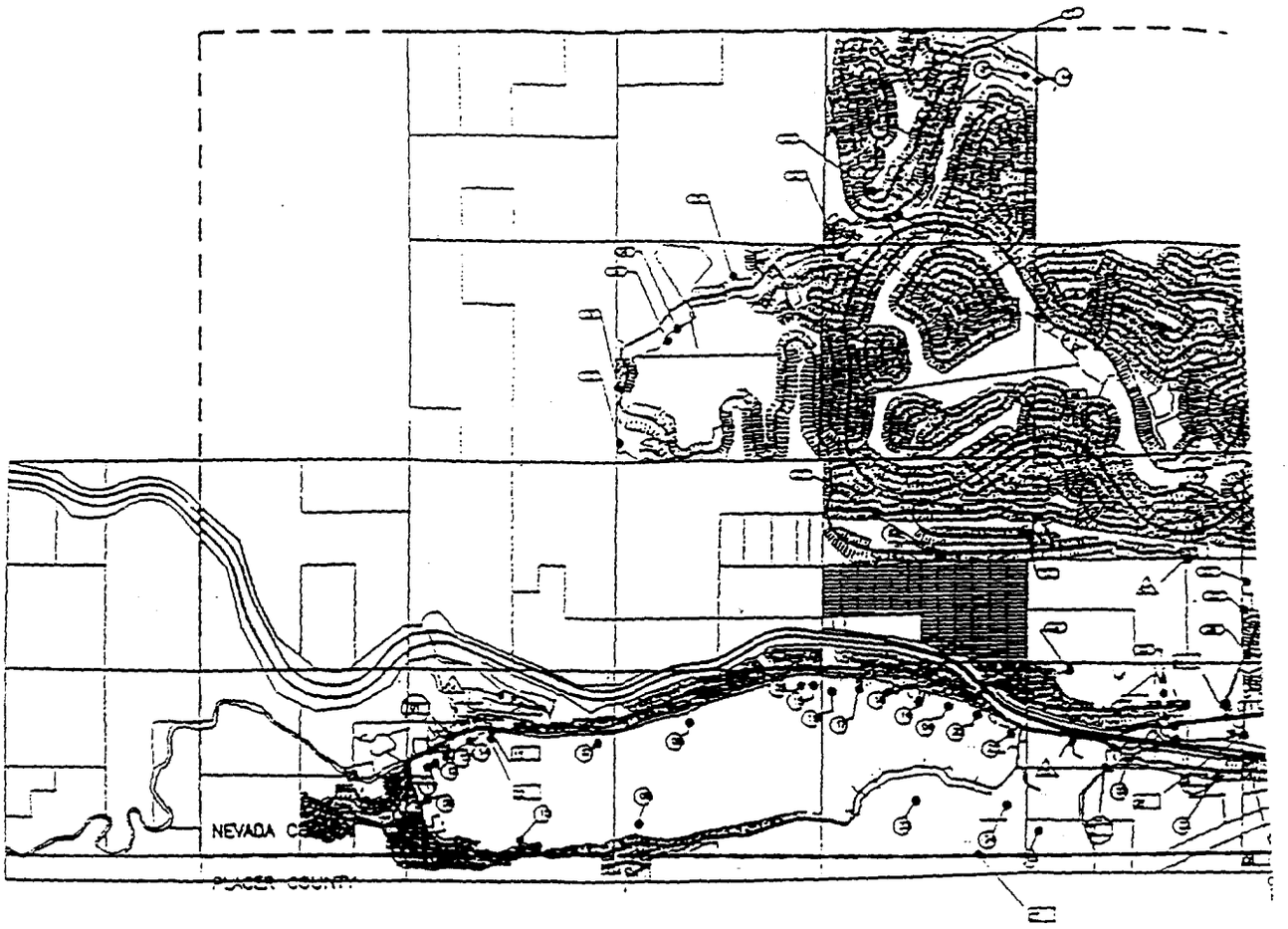
TDPUD Telecommunications Business Case

Exhibit 5 - Annual Capital Expenditures

Program Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Construction Program Summary																	
Infrastructure	1,559,477	19,608	21,972	24,624	27,597	30,930	34,6[illegible]	38,860	43,562	48,835	54,751	56,867	59,040	61,300	63,651	66,096	2,211,838
Fiber & Splicing Costs	1,023,581	9,189	10,052	11,042	12,151	15,245	16,6[illegible]	18,206	19,961	21,929	24,137	24,927	27,586	28,432	29,309	30,222	1,322,591
SCADA/EG/Business Data Electronics	798,872	249,683	113,531	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	1,162,087
Coax	815,368	12,813	14,356	16,091	18,034	20,212	22,6[illegible]	25,394	28,466	31,912	35,778	37,161	38,581	40,058	41,594	43,192	1,241,666
Drops	163,572	53,460	45,351	39,088	34,280	30,628	27,8[illegible]	25,871	24,433	23,455	22,845	22,532	22,459	22,584	22,870	23,292	604,603
Set Top Boxes	14,199	3,169	3,327	3,493	3,665	3,845	4,03[illegible]	4,229	4,433	4,646	4,869	5,100	5,342	5,594	5,857	6,132	81,936
Modems	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0	0
Headend	673,398	13,891	34,173	34,372	34,586	34,821	35,072	35,342	55,631	35,939	56,287	56,617	56,987	57,360	57,706	58,236	1,330,611
Fiber Electronics	263,500	52,700	31,620	31,620	42,160	31,620	42,160	31,620	63,240	31,620	63,240	63,240	63,240	63,240	52,700	73,780	1,001,300
Coax Electronics	242,015	77,455	33,115	33,288	43,068	33,277	43,971	33,273	64,545	33,273	64,545	64,545	64,545	64,545	53,788	75,303	1,021,870
Annual Investment	5,554,013	492,048	308,531	193,617	214,530	180,617	226,194	211,795	304,271	230,810	326,432	330,890	337,764	343,113	327,565	376,251	9,978,802
Cumulative Investment	5,554,013	6,046,060	6,355,591	6,549,208	6,764,047	6,965,824	7,190,771	7,401,566	7,705,837	7,936,447	8,262,879	8,593,069	8,931,852	9,274,766	9,602,350	9,978,602	
Percent of Total Cumulative Investment	55.7%	60.6%	63.7%	65.6%	67.8%	69.8%	72.1%	74.2%	77.2%	79.5%	82.8%	86.1%	89.5%	92.9%	96.2%	100.0%	

Total Construction Program Distribution





TRUCKEE DONNER PUBLIC UTILITY DISTRICT
DARK FIBER
FEASIBILITY MAP

Prepared By: M. Cosmodi
APRIL 1999

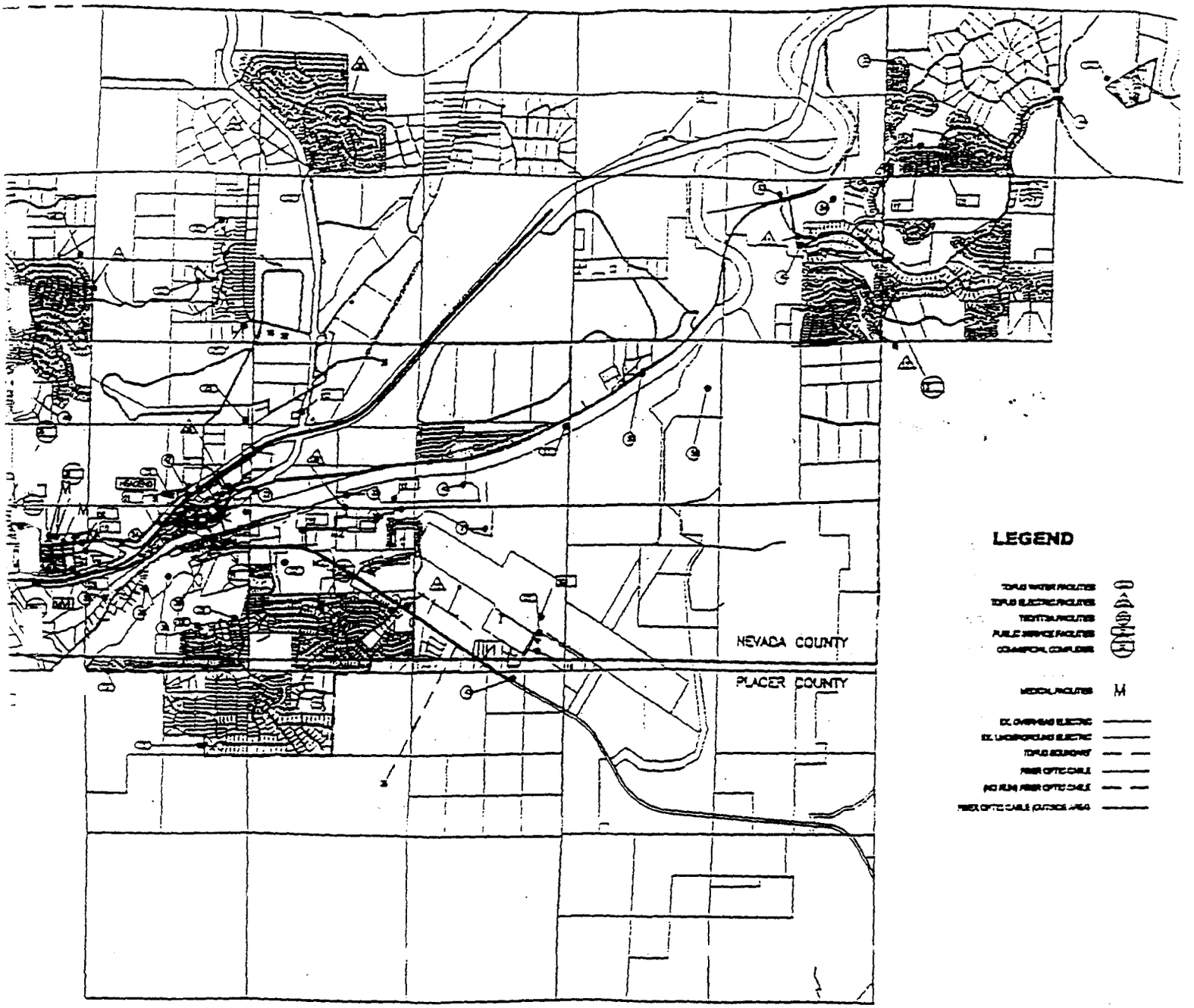

NEVADA COUNTY
PLACER COUNTY
LEGEND

EXHIBIT 3

Telecommunications Business Plan for the Truckee-Donner Public Utility District Addenda, prepared by Navigant Consulting, Inc. (Feb. 2000)

TELECOMMUNICATIONS BUSINESS PLAN FOR THE TRUCKEE-DONNER PUBLIC UTILITY DISTRICT ADDENDA

Prepared For

TRUCKEE-DONNER PUBLIC UTILTY DISTRICT

Prepared By

Navigant

TABLE OF CONTENTS

TELECOMMUNICATIONS BUSINESS PLAN FOR THE TRUCKEE-DONNER PUBLIC UTILITY DISTRICT

Appendix

1 GUIDELINES AND ASSUMPTIONS 1-1

2 CURRENT TDPUD OPERATIONS 2-1

3 TELECOMMUNICATIONS PRODUCTS AND SERVICES TO BE OFFERED BY TPUD 3-1

4 EXAMPLES OF INITIATIVES BEING TAKEN BY OTHER CITIES 4-1

5 REGULATORY CONSIDERATIONS 5-1

6 SENSITIVITY ANALYSIS 6-1